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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/806,647	03/22/2004	Clark R. Baker JR.	TYHO:0110-5 009103-009632	2581
52144	7590	08/10/2006	EXAMINER	
FLETCHER YODER (TYCO INTERNATIONAL, LTD.) P.O. BOX 692289 HOUSTON, TX 77269-2289			BERHANU, ETSUB D	
			ART UNIT	PAPER NUMBER
			3768	

DATE MAILED: 08/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/806,647	<b>Applicant(s)</b> BAKER ET AL.	
	<b>Examiner</b> Etsub D. Berhanu	<b>Art Unit</b> 3768	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-34 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-34 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/22/04 8/3/04</u> . | 6) <input type="checkbox"/> Other: ____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-4 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Diab et al.'272 (cited by applicant).

Figure 11 of Diab et al.'272 discloses a pulse oximeter comprising: a sensor 300 configured to detect first and second electromagnetic radiation signals corresponding to first and second wavelengths of light, red 301 and infrared 302, respectively; an analog to digital converter 332 coupled to the sensor; a normalization module (col. 27, lines 19-24); and a processor 334 coupled to the analog to digital converter. Diab et al.'272 further discloses that the processor is programmed with filter modules 600 and 602, a first and second oxygen saturation calculation module capable of determining multiple oxygen saturation values, wherein the first saturation calculation module is configured to perform adaptive filtering and wherein the second oxygen calculation module utilizes the ratio of ratios, and an arbitration module 680 that selects a best oxygen saturation value based on a saturation confidence depicted by histogram module 620 (col. 50, line 30 – col. 51, line 43 and col. 57, lines 31-48). It is noted that the saturation values used to create the histogram such as that depicted in Figure 24 are based on noise characteristics of the first and second digital signals, and thus the saturation confidence values (number of occurrences)

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are based on noise characteristics of the first and second digital signals. Regarding claim 14, it is noted that a single data set is used to determine a measure of oxygen saturation.

*Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5-9, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Diab et al.'272 further in view of Zahorian et al.'631 (cited by applicant).

Diab et al.'272 discloses all of the elements of the current invention, as discussed in paragraph 2, including detecting a pulse rate (Fig. 25A, element 630), except for the apparatus including a second rate calculation module and a best rate module for arbitrating between the first and second pulse rates based on a pulse rate confidence associated with the first and second pulse rate signals.

Zahorian et al.'631 teaches determining a more accurate fetal heart rate by using an apparatus comprising a processor for determining a plurality of possible pulse rates using a plurality of pulse rate finders in which each pulse rate has a different confidence level (Fig. 3), and a processor 25 for arbitrating between the plurality of possible pulse rates to determine the fetal pulse rate by selecting the rate with the highest figure of merit (Fig. 3). Zahorian et al.'631 further teaches a first pulse rate algorithm configured to analyze a waveform of a first and second digital signal (Fig. 3, peak evaluation modules), and a second pulse rate algorithm configured to analyze a frequency of a first and second digital signal (col. 8, lines 36-49).

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It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus of Diab et al.'272 to include the processor for determining a plurality of possible pulse rates and the processor for arbitrating between the plurality of possible pulse rates, as taught by Zahorian et al.'631, since it would allow a more accurate fetal heart rate to be determined.

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Diab et al.'272 further in view of Zahorian et al.'631 as applied to claim 9 above, and further in view of Courtin et al.'878 (US Patent No. 3,916,878).

Diab et al.'272 further in view of Zahorian et al.'631 discloses all of the elements of the current invention, as discussed in paragraph 4, except for the second pulse rate algorithm including a comb filter.

Courtin et al.'878 teaches the use of a harmonic comb filter to suppress power line interference components from a digital signal (col. 4, lines 14-17).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the second pulse rate algorithm of Diab et al.'272 further in view of Zahorian et al.'631 to include a comb filter, as taught by Courtin et al.'878, since it would remove the power line interference component from the digital signal.

### ***Double Patenting***

6. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

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7. Claim 1 is provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claim 1 of copending Application No. 11/039529. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

8. Claim 14 is rejected under 35 U.S.C. 101 as claiming the same invention as that of claim 13 of prior U.S. Patent No. 6,836,679. This is a double patenting rejection.

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 1-13 and 15-34 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8, 12 and 14-37 of U.S. Patent No. 6,836,679. Although the conflicting claims are not identical, they are not patentably distinct from each other because the methods of the patent require particular elements for their implementation. In particular: method claims 1-8 of the US patent require an apparatus with the limitations set forth in claims 5-12 of the current application; method claim 12 of the US patent requires an apparatus with the limitations set forth in claim 13 of the current application; method claims 14-33 of the US patent require an apparatus with the limitations set forth in claims 15-34, respectively, of the current application; and method claims 34-37 require an apparatus with the limitations set forth in claims 1-4 of the current application. Thus, one in possession of each of the methods of the patent would necessarily be in possession of each of the claimed apparatuses.

### *Conclusion*

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Leon et al.'934 (US Patent No. 5,365,934) discloses an apparatus for measuring heart rate that determines a plurality of heart rates and uses an arbitrator to choose the best fit heart rate.

12. None of the prior art teaches or suggests, either alone or in combination, an apparatus comprising: an arbitrator configured to linearly interpolate between a plurality of possible blood constituent values or possible pulse rate values to generate a measure of the blood constituent or pulse rate where none of the confidence levels is greater than all other confidence intervals by more than a first amount; a plurality of pulse rate finders for determining a plurality of possible pulse rates, each possible pulse rate having a confidence level associated therewith base on at least one quality metric, and an arbitrator configured to arbitrate between the plurality of possible pulse rates with regard to the confidence levels wherein one pulse rate finder includes a comb filter, a frequency selector and a pulse rate generator; a pulse rate finder configured to determine its corresponding possible pulse rate by comparing data to a predetermined waveform template, identifying a sequence of waveform characteristics indicative of a waveform period, averaging a number of successive waveform periods to determine an average waveform period and determining the corresponding possible pulse rate from the average waveform period and an arbitrator for arbitrating between the plurality of possible pulse rates with regard to the confidence levels to determine a pulse rate; or a comparator configured to compare data to a predetermined waveform template to generate a second pulse rate, the second pulse rate having a second confidence level, and an arbitrator configured to arbitrate between the first and second pulse rates with regard to the first and second confidence levels, in combination with the other claimed elements.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Etsub D. Berhanu whose telephone number is 571.272.6563. The examiner can normally be reached on Monday - Friday (Every other Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on (571)272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

EDB

ERIC F. WINAKUR  
PRIMARY EXAMINER  
